

CEMP-RT

**DEPARTMENT OF THE ARMY
U. S. Army Corps of Engineers
Washington, DC 20314-1000**

EM 1110-1-4002

Manual
No. 1110-1-4002

30 June 1997

**Engineering and Design
GUIDANCE FOR LOW-LEVEL RADIOACTIVE WASTE (LLRW)
AND MIXED WASTE (MW) TREATMENT AND HANDLING**

1. Purpose. This engineer manual (EM) contains guidelines for the treatment and handling of contaminated materials and structures during the cleanup and environmental restoration of sites contaminated by radioactive waste containing low-level radioactive waste (LLRW) either alone or combined with hazardous/toxic components to make mixed waste (MW). Specifically, the guidelines relate to remedial action concerning essentially uncontrolled LLRW or MW contamination arising from past practices at the sites. The primary purpose of this manual is to describe alternatives for LLRW and MW collection, handling, treatment, volume reduction, packaging, temporary storage, and transportation. These descriptions are intended to allow evaluation and selection of the most appropriate courses of action for the site to be remediated. This manual is not intended to provide in-depth and detailed technical recommendations, sophisticated scientific procedures, or site-specific recommendations. In addition to the USACE, Army, and Department of Defense (DoD), technical information on the treatment and handling of LLRW and MW are described and regulated by other Federal agencies including the Nuclear Regulatory Agency (NRA), the Department of Energy (DOE), the Environmental Protection Agency (EPA), the Department of Transportation (DOT), and the Occupational Safety and Health Administration (OSHA).

2. Applicability. The guidelines within this manual are applicable to all USACE elements and major subordinate commands (MSC) having responsibility through governmental interagency agreement or by assignment by HQUSACE for the remediation of sites contaminated by LLRW and MW. These guidelines are applicable to accomplishment of both the Military and Civil Works missions of USACE. Strictly chemical or biological aspects of sites are not addressed except in passing reference to their component part of MW. Involvement may arise, for example, as support to site-owning agencies such as the DOE or as support to the EPA activities associated with non-government-owned site remediation. Such site remediation activities will fall within the purview of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the Resource Conservation and Recovery Act (RCRA); the Hazardous and Solid Waste Amendments (to RCRA) (HSWA); or the Superfund Amendments and Reauthorization (of CERCLA) Act (SARA). In the event of military (Department of the Army, specifically) responsibility for MW and LLRW sites requiring remediation, this manual applies as directed by HQUSACE. Such involvement will fall under the Defense Environmental Restoration Program (DERP). Oversight responsibilities for managing disposal of DoD LLRW have been assigned to Headquarters, U.S. Army Industrial Operations Command (IOC), Rock Island, Illinois. In such a role IOC is responsible for disposal of all radioactive material generated by the DoD at all currently licensed land burial sites in the United States, and for

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maintaining the required records for the DOD on the type and quantity of disposed radioactive material.

FOR THE COMMANDER:

A handwritten signature in black ink, appearing to read "Otis Williams". The signature is fluid and cursive, with the first name "Otis" and last name "Williams" clearly distinguishable.

OTIS WILLIAMS
Colonel, Corps of Engineers
Chief of Staff